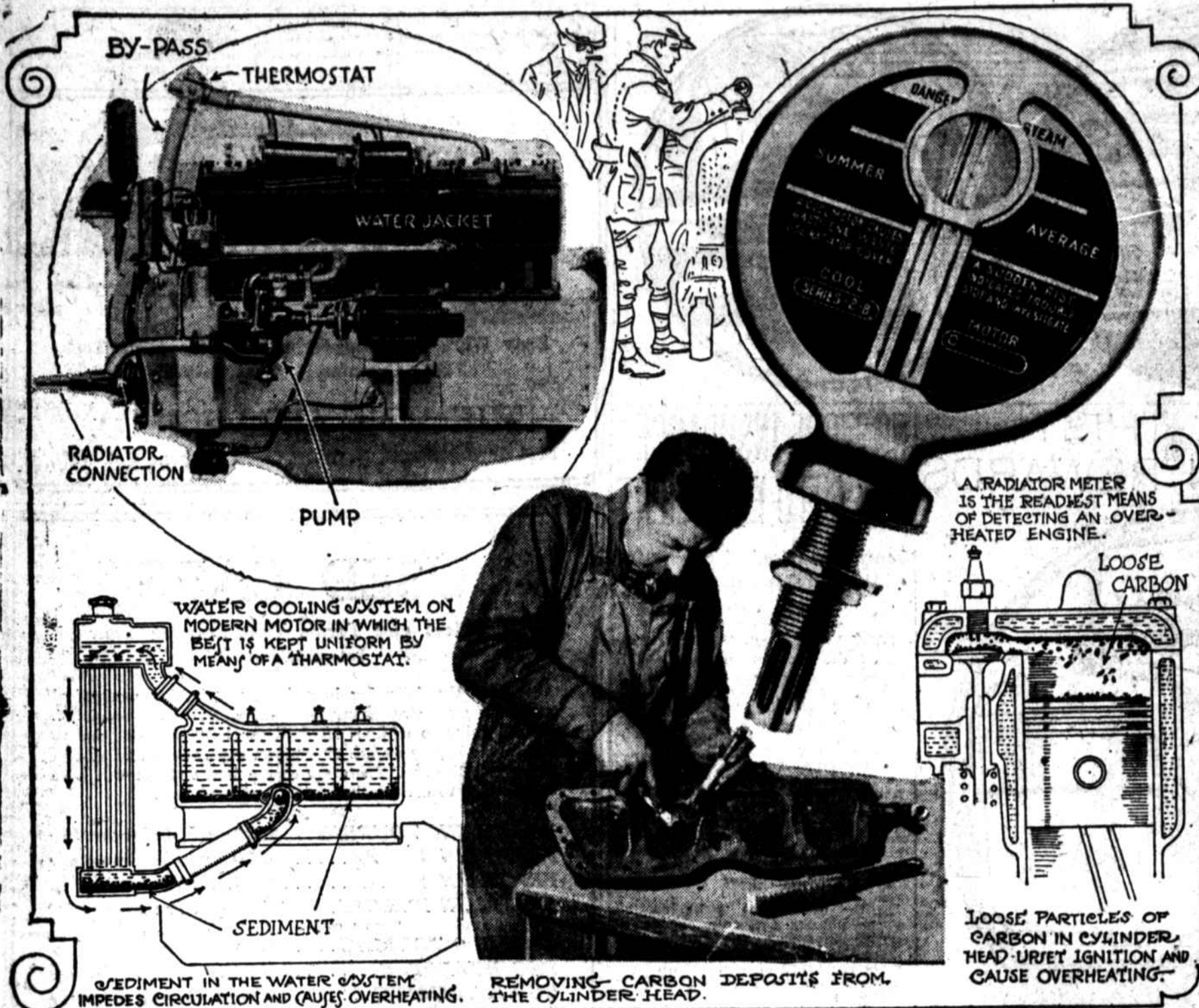


What Makes the Automobile Engine Overheat



Not Distinctly a Summer Complaint—Some of the Common Causes Explained.

By ALEXANDER JOHNSTON,
Editor of Motor.

The uninitiated might easily assume that overheating is distinctly a summer complaint, but this common ailment has no seasonal characteristic and is quite likely to happen in zero weather as it is in the middle of summer. It might also be thought that overheating is at worst merely a nuisance and so worthy of only passing comment. As a matter of fact, overheating invariably means that one of a certain few troubles have developed in the mechanism and, which ever one happens to be the cause, should be remedied before it develops into a major failure.

Perhaps the commonest cause of

overheating is a spark lever that is too far advanced. When the lever is advanced unduly, the spark occurs before the piston is at top dead center. This means that more of the cylinder wall is exposed to the heat of the flame than was intended by the designer. As a consequence, more heat is carried over into the cooling system, so that the water quickly boils. In cases of chronic overheating, be sure that the fundamental cause is not chronic advancement of the spark lever.

Another very common cause of overheating is that old enemy, carbon. Carbon deposits in the combustion chamber cause pre-ignitions exactly as the too far advanced spark lever does. The specks of carbon become incandescent and fire the incoming fuel charge before the proper time, the excess area of cylinder wall being exposed in this case also. The symptoms that indicate carbon overheating

are knocks, backfiring and a noticeable falling off in power. The cure, obviously, is removal of the carbon deposits, which may be done by scraping or burning out with oxygen, if the cylinder head is not removable.

Of course trouble in the water system is the most direct way of producing overheating. By removing the radiator cap, while the engine is running, it is easy to determine whether the water is circulating in the system at a rate of speed sufficient to insure proper cooling. If there seems to be trouble in the water system, it may be necessary to have the radiator cleaned out, and this is usually a job for a firm specializing in this work. As much as four pounds of muck is often removed from a single radiator, due to the casual way in which the ordinary driver fills up with any kind

of water that happens to be at hand.

In the thermo-siphon cooling system a comparatively slight accumulation of foreign matter will cut down the flow of water tremendously. With the pump system, the flow being positive, accumulations must be heavier, and with this system it is natural to blame the pump itself when a stoppage occurs. By opening the drain of the pump system the rate at which the water is discharged will give a fairly accurate idea of how the pump is functioning.

In many modern cooling systems there is included a thermo-static device to regulate the temperature of the water and keep it as near maximum efficiency as possible. If anything happens to go wrong with this thermostat, overheating will develop at once.

In addition to these functional causes of overheating there are other possibilities to be considered, for instance, faulty carburetion is a frequent cause of engine overheating. Poor mixture burns slowly, instead of exploding with snap, and the effect being the same as running with an unduly retarded spark. The mixture is still burning after the piston starts down, exposing an excessive amount of cylinder wall to the flame and permitting an undue amount of heat to escape into the cooling water. The average car owner tends to run on too rich mixture, so that this trouble is commonly met with.

Valve and ignition timing are a further source of overheating. These causes do not produce the temporary and sudden cases of overheating, but rather run to the chronic cases that are so difficult to diagnose. As a general thing the car owner will do well to go to the service station to have valve or ignition timing adjusted.

Faulty lubrication is another cause of overheating and the car owner will do well to prevent any possibility of this developing by giving the engine correct and plentiful lubrication at all times.

Finally, let every car owner understand that overheating is a symptom of some ill, which, unless remedied, will develop into a major failure. Therefore, cure overheating as soon as it shows its head.

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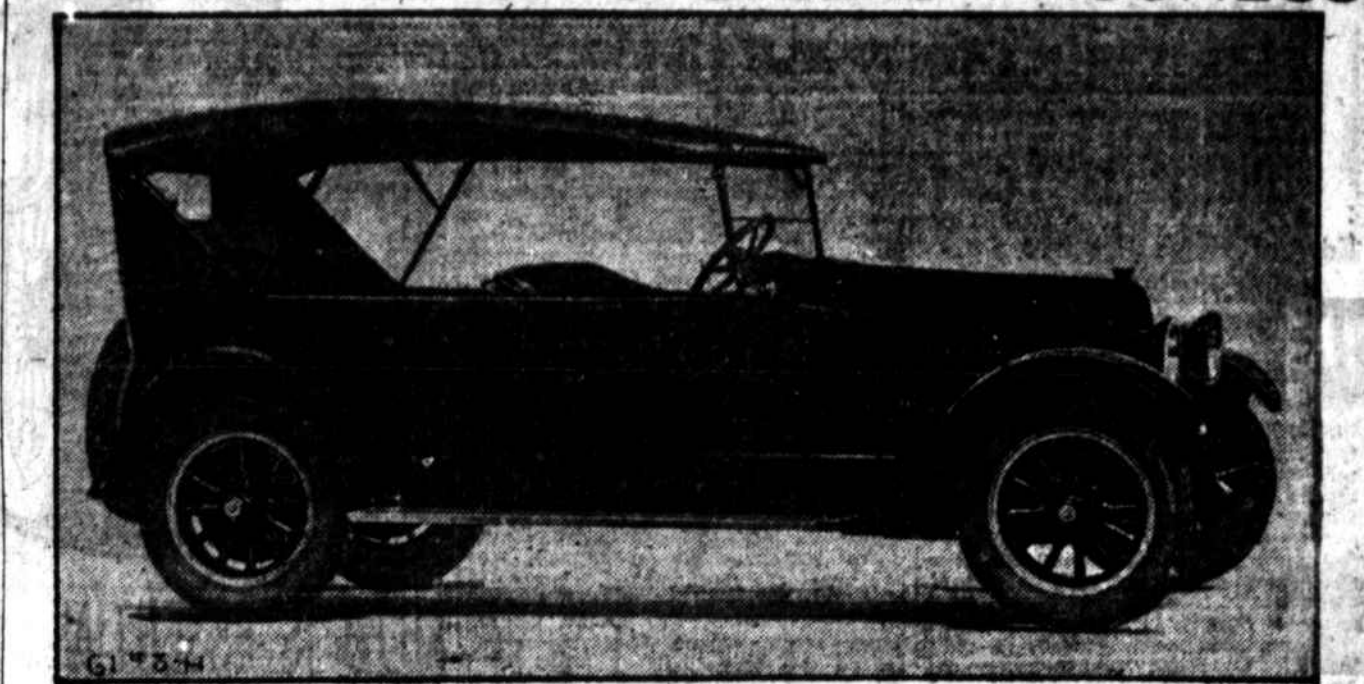


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